# Interview with Carmela Keeney

## Executive Director, Space and Naval Warfare Systems Center San Diego

*Carmela Keeney*

*Carmela Keeney assumed the top civilian position, Executive Director, Space and Naval Warfare Systems Center San Diego (SSC San Diego) in December 2005. Keeney, a member of the federal government's Senior Executive Service, assumed leadership of an organization of almost 4,000 civilian and military personnel, most of them scientists and engineers, responsible for inventing, developing, engineering, installing and maintaining information technology and systems on Navy ships, submarines and aircraft, and at shore sites.*

*The Center is the Navy's research, development, test and evaluation, engineering, and fleet support center for command and control, communications, ocean surveillance and the integration of systems that overarch multiple platforms. Increasingly the Center's efforts are for the other Services as well as the Navy, for Defense Department-level agencies like the Defense Advanced Research Projects Agency (DARPA), and for federal non-military agencies like the Department of Homeland Security and the Office of Disaster Preparedness. SSC San Diego's products include information-collection and intelligence systems; communications devices and networks; tactical information processing; knowledge management and decision support tools; and navigation technology.*

*Each year, the president honors a select group of career federal executives with the President's Rank Award for outstanding leadership, accomplishments and service in some of the nation's most critical federal positions. Keeney was among a distinguished group of federal employees named in the 2005 Presidential Rank Awards for Meritorious Executive in October 2005.*

*CHIPS: What are the most critical challenges you have as the executive director?*

**Ms. Keeney:** We are a full spectrum center here at SSC San Diego, from basic research through operational support. A top priority is developing, fielding and supporting systems to meet today's critical needs. An example of a current high priority area is coalition interoperability. We aren't only worried about today, we are very concerned about the next generation and the generation after next. It is an increasing challenge in our current environment to maintain a balance between today's needs while not losing our focus on basic research and technology development that will lead to transformational capabilities in the future.

One of our priorities is to make sure that we develop and sustain core competencies that are needed to support today's warfighter and the warfighter of the future — that includes maintaining a strong science and technology (S&T) base to ensure we maintain our technological and warfighting edge in the future. A related priority area for us is recruiting and developing the next generation of scientists and engineers that can address these challenges.

*CHIPS: Are you referring to a shortage of S&T skills or funding?*

**Ms. Keeney:** It is a circular problem, and you definitely need both. We have seen a decline in basic science and applied research over the last two decades. We are working with the Office of Naval Research (ONR) on its basic research and applied research program. We are also working with DARPA. We also need to assess future requirements and train people to meet those requirements because you can't hire new engineers and expect them right away to solve the fleet's immediate and long-term technology challenges.

One of the other challenges is that when we develop a new technological solution, transitioning that innovation into a program of record is difficult and can take many years due to the budget cycle. Gary Wang, who is the chief technology officer for TEAM SPAWAR, is working on moving things more smoothly from the science and technology arena into a program of record where they can be deployed and sustained. He is engaged with NNFE, the Naval NETWAR FORCEnet Enterprise, in terms of identifying capabilities for the generation after next.

*CHIPS: Are you saying that some of the projects that you are working on are not programs of record yet?*

**Ms. Keeney:** In the science and technology arena, most projects are not acquisition programs of record. We are talking about the early phases of discovery and invention, which organizations like DARPA and ONR support, the basic science and applied research early phase of the spectrum before you go into engineering development, production, and in-service support.

Sometimes you are working on something like nonlinear dynamics. Nonlinear dynamics is a science and technology area that applies to a whole range of capabilities and systems, including communications and sensors, but it is not a formal program of record.

We have identified several key science and technology areas that we are focusing on. Examples of these include: human-information system interaction in distributed computing environments; dynamically reconfigurable networks; dynamic, nonlinear techniques for communications and signal processing; photonic computation; and fusion of geographically dissimilar source data.

*CHIPS: Are these initiatives just applicable to SSC San Diego?*

**Ms. Keeney:** These are just a few of the technologies that are applicable to the C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) mission area; that is, C4ISR across the board for both the Navy and joint arena, certainly not just to the Systems Center. They are technologies that would apply to warfighting missions and national capabilities in the future.

Two major focus areas for the center are: maritime domain awareness and supporting the global war on terrorism. In the MDA arena one of the major efforts has been supporting the development and fielding of an integrated AIS solution, an Automatic Identification System for maritime platforms. In the GWOT arena, we are applying S&T technologies to the counter-IED problem, antiterrorism and force protection.

*CHIPS: You are looking at the whole spectrum of national security?*

**Ms. Keeney:** Right. The priority area of course is a naval focus but we also look at joint and national level C4ISR. For example, we conducted a technology assessment for the Department of Homeland Security on maritime domain awareness. The results of this study were then shared and briefed to other organizations and agencies including the Navy.

*CHIPS: One of the challenges you've had is your customers' understanding of how the Navy Working Capital Fund agencies operate.*

**Ms. Keeney:** The Navy Working Capital Fund is a complicated model that requires us to operate like a business. We establish our labor rates two years in advance and then we recover all of our costs from funding provided by the hundreds of projects that we work on. Whether we are working for the Navy, a joint or federal agency, the organization sponsoring that work pays its share of all of our costs including things like salary, benefits, utilities, comptroller or security services.

All these costs are recovered from the projects that we work on, much like private industry. However, we do not generate any profit. When we do joint work, for example, the Navy has the benefit of leveraging the results and knowledge gained from that work — without having to invest its own resources.

While one of the major disadvantages of the Working Capital Fund is that it is not well understood, there are significant advantages. It forces us to have an excellent handle on all of our costs. Nearly every decision we make addresses cost as a major consideration. There are many drivers, both internal and external, that force us to contain and constantly strive to reduce our costs.

At the center, we use tools like activity-based costing and systems enterprise resource planning (ERP) to help us run the business and manage our costs, so that we can get the most out of every single dollar. We realize that there are very limited resources, so we work hard to deliver the most product and service that we can for the funds that we receive. We always strive to be a good steward of taxpayer dollars. The business model helps us do that.

*CHIPS: You are one of the original FORCEnet technical directors. Can you talk about that initiative and how the technical director's role has evolved over time?*

**Ms. Keeney:** The FORCEnet technical directors stood up in fall 2004, the beginning of FY05. At that time I was the FORCEnet technical director (TD) for ISR (intelligence, surveillance and reconnaissance) and IO (information operations). There also are a set of deputy technical directors at SSC Charleston. In FY05, the TDs and deputy TDs accomplished a significant number of critical things. One of the first things they did, working with SPAWAR 05 and the SPAWAR FORCEnet domain chief engineers (CHENGs), was to develop and publish the FORCEnet Technical Reference Guide. A critical component of this was communicating this technical guidance to the acquisition community, including all of the Systems Center project managers.

Another major effort was implementing a work shaping and acceptance process for all the SPAWAR Systems Centers. This is a process that helps us evaluate and align our work to ensure it is staffed with the right team, at the right cost. We have baselined all of our ongoing work — and this applies to all Systems Centers: San Diego, Charleston and Norfolk.

Before then we pretty much operated as completely independent entities. Proposals now are vetted, reviewed and approved in advance by senior levels before they are released from any Systems Center. We can be sure that we have the right team, the right laboratory infrastructure and the right competencies from across all the Systems Centers to apply to the problem. We are looking at the type of solutions we want to provide so that we can increase our progress in achieving the FORCEnet environment.

As part of that work shaping and acceptance process, we have conducted 23 different classes across TEAM SPAWAR at San Diego, Norfolk, Charleston and Hawaii. The classes provide FORCEnet guidance, so in addition to learning how to use the tools, we train on what it means technically to have a proposal that is aligned with FORCEnet. We used the FORCEnet Technical Reference Guide as part of this training. We have had more than 1,100 people attend the training — project managers and line managers — to help them align their projects with FORCEnet objectives.

We also held two major FORCEnet engineering conferences with more than 1,000 attendees at each to get the word out to the acquisition community, industry, and any other developer, on how to orient their projects, their work, their systems and their future capabilities with FORCEnet.

We are also working on technical authority. We have identified a set of technical authority experts, and the TDs and deputy TDs are supporting the SPAWAR technical authority process for TEAM SPAWAR. As we continue in FY06 with work shaping and acceptance, we are also increasing our focus on technical authority and competency alignment.

*CHIPS: Can you talk about the organizational improvements that you are making at the center?*

**Ms. Keeney:** At the center, we have had a culture of continuous improvement for several decades. We are constantly striving to improve our processes and the quality of our products and services. We try to make sure that we are cost-effective, deliver quality products and services and that we meet cost and schedule for our customers.

One example of a proven initiative is our software engineering process improvement initiative for CMM, Capability Maturity Model.

In 2000, we were certified as an organization at CMM Level III for software engineering. We are now working toward the Capability Maturity Model Integration for systems engineering, CMMI Level III certification.

Another area we have been working on is project management. This is a center core competency and a process that we want to continually improve on. We have researched the best practices in industry and across government and have developed a project management guide that identifies best practices to be used on all of our projects.

*CHIPS: Are you implementing Lean Six Sigma?*

**Ms. Keeney:** Yes, another area is the use of Lean Six Sigma to reduce costs and improve quality and speed of execution. We have several Lean Six Sigma projects ongoing, internal projects and ones we are working across TEAM SPAWAR, in addition to projects for some of our customers to improve cost, speed and quality of the product.

We also use the Balanced Scorecard tool. We have been using that for four or five years to help with strategic planning and to make sure we have meaningful measures for our strategic goals. We are now applying the Baldrige criteria for performance excellence to ensure that the different improvement efforts we have going on are balanced and integrated and include a strong focus on results, not just the process itself. Malcolm Baldrige served as Secretary of Commerce, and his managerial excellence contributed to long-term improvement in efficiency and effectiveness of government.

*CHIPS: Can you talk about the leadership exchange between SSC San Diego and SPAWAR headquarters?*

**Ms. Keeney:** We have had a lot of leadership exchange between the Systems Center and Headquarters. That was one of the byproducts of SPAWAR moving here from Washington, D.C. I think it has been a healthy dynamic. To cite some examples, the current SPAWAR Vice Commander, Rear Adm. Tim Flynn, was previously our commanding officer. The current deputy commander for SPAWAR, Rod Smith, was in my position as the executive director here. Dennis Bauman, the Program Executive Officer (PEO) for C4I and Space and the JPEO for the Joint Tactical Radio System, used to be one of our division heads.

There has also been a lot of movement from the PEO and Headquarters to the Systems Center. Capt. Frank Unetic, our CO now, was a program manager in PEO C4I and Space, and the SPAWAR executive assistant. Gary Wang, our chief technology officer, was the head of one of Headquarters' major departments as a program manager. Tim Smith was a PEO program manager and now heads up our Fleet Engineering Department.

Don Endicott started here, went to SPAWAR's Office of the Chief Engineer, came back and is now the head of our Communications Department. He is also one of the FORCEnet technical directors.

We see this as a phenomenon that is likely to continue in the future, and we are working to improve our processes to facilitate a healthy exchange of personnel.

As with most government organizations, we have also seen an increase in retirements. We conducted studies in the 1990s that predicted the bow wave was going to happen for us from 2002 to 2008. We took action years ago to adjust our hiring strategy, and this included a significant increase in reinvigorating our New Professional Program.

For more than five years now we have successfully recruited from some topnotch colleges to provide a major infusion of talent and enthusiasm. It has been a great rejuvenation of our workforce. Given the investment that we are making to develop this generation, we are also watching closely our retention statistics and our metrics — and they are looking good.

One of the issues in San Diego is the cost of living. However, even with the high cost of living, we still have a high retention rate for the personnel we have been recruiting. Part of the reason for this is the challenging and interesting work we are engaged in.

*CHIPS: That is something to be proud of because of the shortage of graduates with math, science and engineering degrees, there is a lot of competition from industry for the same graduates.*

**Ms. Keeney:** We make a concerted effort and our leadership is actively involved — project managers, branch heads, division heads and department heads. They go to different universities to bring in topnotch talent. We are very happy with the students we have recruited from various universities and colleges. They are very impressive.

*CHIPS: I want to congratulate you on your President's Rank Award in 2005. You talked about technical competencies and your award had a lot to do with your outstanding leadership skills. In addition to developing technical competencies for your workforce, are you also looking at leadership skills?*

**Ms. Keeney:** Thank you. Yes, in the late 1990s, we embarked on another organizational improvement initiative called 'High Performance Organizations.' It includes a network talent model that defines four competencies that every individual should have: technical, management, leadership and team skills. So, if you are an engineer, your technical skill is your engineering skill; if you are a security specialist, the security competency is your primary technical skill, and so on. That is the technical base.

The model also says in addition to having strong technical skills, you need to have strong team skills, management skills and leadership skills. Those are the four basic components. To emphasize this, we included it in our Balanced Scorecard, and we evaluate how we are doing during our performance cycle as part of the performance appraisal process.

We have a vision to be the preeminent provider of integrated C4ISR solutions for the warfighter across Navy and the joint and national community, with our primary focus on integrated C4ISR for the maritime domain. That is our goal: to be C4ISR experts that can address tough national security problems across the spectrum from research and development to acquisition, test and evaluation — across the life cycle. CHIPS